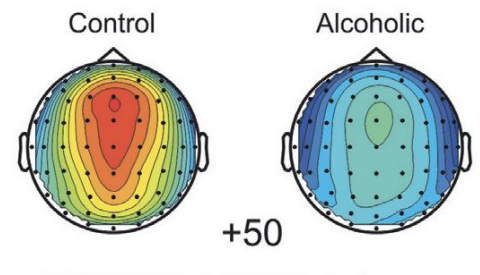


RELIABLY USING QDA MINER/WORDSTAT TO IDENTIFY ALCOHOLICS FROM THEIR EEGS



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KEY WORDS

Electroencephalography (EEG); Machine Learning Models; QDA Miner/WordStat.

CONTEXT

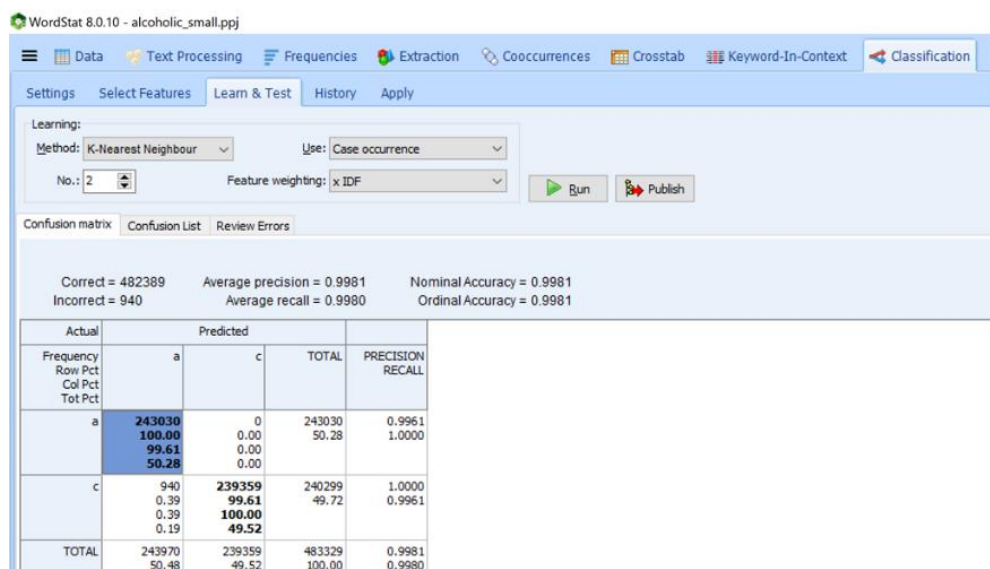
Increasingly, both supervised and unsupervised machine learning (ML) are being used to study the adverse medical effects of alcohol on the human brain (see the literature reviews by Rangaswamy and Porjesz, 2014 and Priya *et al.*, 2018).

METHOD

In this blog, we used QDA Miner/WordStat to identify alcoholics from their EEGs. Precisely, we used a small sample of 3 alcoholics and 3 controls to train a *K-Nearest Neighbour* machine learning classifier with a *leave-one-out* as the validation method (see Nyakuengama, 2018).

RESULTS

As shown below, our ML model yielded superior performance parameters (i.e. precision, recall and accuracy - all above 99%). This is very encouraging as previous studies reported model accuracies of 80-97% based on various ML classifiers that ranged from SVM to *K-Nearest Neighbour* (Priya *et al.*, 2018).



FUTURE PLANS

The next step is to use a bigger dataset and a robust statistical design that targets specific model features.

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 - Supervised and Unsupervised Machine Learning Features
 - Webinar on the New Features of WordStat 8 - Content
- Survey Design and Analysis Services Pty Ltd, vendor of QDA Miner, WordStat and Stata.

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